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A 'sea monster' depicted in the 1585 map of Iceland may exemplify spy-hopping behaviour in cetaceans

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ABSTRACT: While there is a long history of misidentifying whales as sea monsters, historical maps and anecdotes can provide early depictions and descriptions of cetacean biology. For example, the map of 'Islandia' [Iceland] reproduced by Abraham Ortelius (1527–1598) in numerous printings of his atlas *Theatrum orbis terrarum* has an array of sea monsters, including the 'Staukul', that was said to stand upright out of the water for extended periods. This may be the earliest portrayal of spy-hopping, a common behaviour in which whales elevate themselves above the water to observe their surroundings.

KEYWORDS: Abraham Ortelius – iconography – Islandia – Renaissance map – sea monsters – 'Staukul'– *Theatrum orbis terrarum* – whales.

INTRODUCTION

During the nineteenth century when natural theology and theories of organic development were being widely debated, many prominent naturalists contributed to discussions about the nature of sea monsters in leading scholarly journals (Brown 1990; Lyons 2009; Regal 2012; McGowen-Hartman 2013; France 2019). For much of the twentieth century, as natural history matured into the discipline of ecology (Peters 1980), discussions about sea monsters shifted from science to pseudoscience and became largely relegated to the woolly world of cryptozoology (Dendle 2006; Rossi 2016; France 2019). This has changed in recent years with the growing recognition that anecdotal information compiled from a wide variety of non-traditional sources (for example, Saenz-Arroyo *et al*. 2005, 2006; McClenachan *et al*. 2012; da Silva *et al*. 2017) can be used to comment on modern concerns, as for instance, the 'shifting baseline syndrome' in historical ecology (Pauly 1995). In this regard, the literature on so-called sea monsters offers promise as a potential source of useful historical information (Parsons 2004). One approach is to re-examine the 'data' (Paxton 2009) embedded in accounts of sea monsters to provide historical insights (for example, Paxton and Naish 2019). Another approach is to reinterpret illustrations of sea monsters in the light of more recent information on natural behaviour (Paxton *et al*. 2005; France 2021; McCarthy *et al*. 2023).

The confusion about cetacean taxonomy that persisted well into the nineteenth century (Burnett 2007), resulted in a long history of conflating or misidentifying whales as sea monsters (Szabo 2008; France 2016; Hendrikx 2018; Brito *et al*. 2019). Despite the uncertainty regarding the phylogeny of whales, it is often not difficult to equate modern cetacean species with their monstrous counterparts in both early maps and natural history texts (Whitaker 1986; Nigg 2013). The purpose of this paper is to discuss a portrayal of the well-known cetacean surfacing behaviour termed spy-hopping (Wursig and Whitehead 2009) in an illustration of a sea monster on a famous late sixteenth-century map.

Figure 1. 'Islandia'. The map of Iceland created in 1585 and reproduced in Abraham Ortelius's *Theatrum orbis terrarum* depicting numerous sea monsters. The 'Staukul' (labelled 'M') can be seen in the lower right. Public Domain. The National Library of Norway.

ACCOUNT AND INTERPRETATION

Sea monsters in the context of the historicity of natural science (Barber 1980: 13) exist on the margins of what is known, both in terms of epistemology (Westrum 1979; Lyons 2009) and biogeography. For the latter, this makes perfect sense as there is a long tradition, as far back as Pliny the Elder (23–79) and Claudius Ptolemy (*c.*90–168), of locating sea monsters in the frigid waters of the North Atlantic Ocean (Houwen and Olsen 2001; Jorgensen 2018: Szabo 2018). These cryptic creatures populate the pages of natural history texts (France 2021) and abound as illustrations on maps in the Renaissance period[1] (Davies 2016; Starkey 2017; Sambo 2020). Of note in this regard are the 'Konungs skuggsjá [King's mirror]', a mid-thirteenth-century Old Norse book (Anonymous 2017) that contains several chapters on the marvellous marine life around Iceland and Greenland (Whitaker 1985; Nigg 2013; Van Duzer 2013) and the map of Iceland ('Islandia') dated 1585 (Figure 1) that was reproduced in numerous printings of *Theatrum orbis terrarum*, the Renaissance atlas of Abraham Ortelius (1527–1598). Both are sources that others have used to propose natural explanations for what had been thought at the time to be sea monsters (Whitaker 1986; Lehn and Schroeder 1981, 2003, 2004; France 2021).

The Iceland map depicted numerous sea monsters in the ocean around Iceland. One, the 'Staukul' (labelled 'M'), is worthy of the attention of historians of cetacean behaviour (Figure 2). As explained in the text that accompanied the map: 'M. Staukul, Germanicè *Springual*, integro die visus est stare erectus ex cauda. nomen habet à saltando. Nauiculis

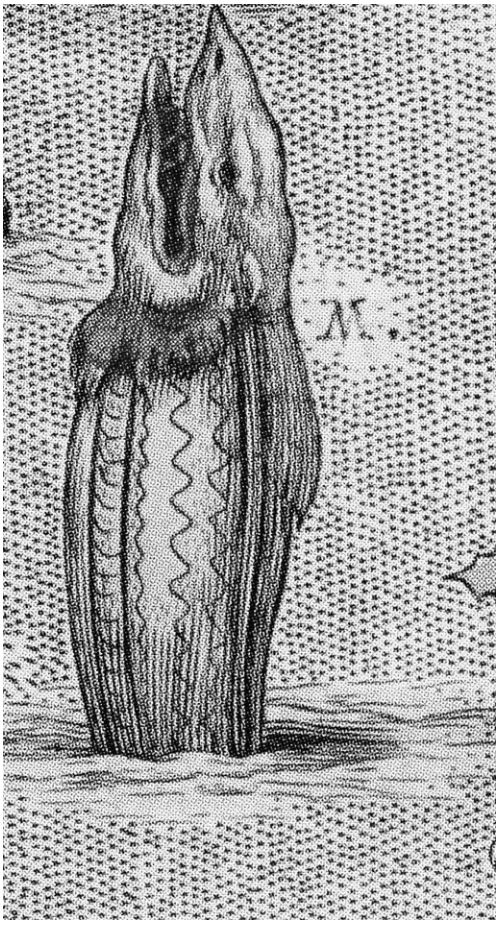

Figure 2. Detail from the 1585 map of 'Islandia' [Iceland] showing the 'Staukul' labelled 'M'. The stationary pose – note the undisturbed water – closely resembles the spy-hopping behaviour of various cetacean species.

mirum in modum inimicus, humanas carnes plurimum appetit.' In the English edition of Ortelius's *Theatrum orbis terrarum*, published in London in 1606 by John Norton, this passage was rendered: 'M. Staukul, The Dutchmen call it *Springual*; he hath beene seene to stand a whole day together upright upon his taile. It is so called of leaping or skipping. It is a very dangerous enemy to seamen and fishers; and greedily seeketh after mans flesh' (Ortelius 1606: fol. 103 verso).

In the canon of sea monster sightings, Hans Egede's 'most dreadful monster' seen erupting out of the water off the coast of Greenland in 1734 (Egede 1745: 87–89) may be one of the earliest accounts of a breaching whale or basking shark. The description and depiction of this explosive leap have been a prominent influence on the artistic imagination from the nineteenth century to the present day (France 2021). The depiction of the 'Staukul' on Ortelius's map differs, however, from Egede's monster as well as many other representations of cetacean-cum-sea monsters on this and other prominent Renaissance maps, such as Olaus Magnus's 'Carta Marina' and Sebastian Munster's 'Monstra Marina & Terrestria' (Nigg 2013; van Duzer 2013), where the creatures are displayed dynamically – blowing vapour or consuming prey, for example. In contrast, Ortelius's 'Staukul' is portrayed as standing erect

in a frozen pose in a placid ocean, the water about its base mere ripples rather than splashes, and its mouth only slightly agape. This early depiction can now be interpreted as the normal behaviour known as spy-hopping of many whale species (Wursig and Whitehead 2009), whereby the animals elevate their heads and upper bodies above the water to inspect their surroundings.

The thirteenth-century text titled 'Konungs skuggsjá [King's mirror] contains a description of the 'merman' found 'in the seas of Greenland' that might also have been based on observations of spy-hopping. According to the account, the merman is 'tall and of great size and rises straight out of the water', thereby displaying its 'shoulders, neck and head, eyes and mouth, and nose and chin' (Anonymous 1917: 135). It is the statement that no one had ever seen the 'lower end' of the elongated creature that suggests that this account might be an early description of spy-hopping since whales engaging in such behaviour (sometimes for the purpose of hunting prey) are known to slip back into the ocean with little disturbance. However, the merman was also reported to 'plunge into the waves' with some force after elevating its upper body above the water suggesting that this is possibly an early description of breaching. Given that Ortelius's creature was also said to display dynamic leaping behaviour, distinctions between spy-hopping and breaching may be moot. That such behaviour was attributed to what the author of 'Konungs skuggsjá' considered to be a merman is possibly due to atmospheric refraction brought about by contrasting thermal layers, which Lehn and Schroeder (1981) posited can visually distort (by vertical lengthening and side-to-side pinching) the body shape of marine mammals, including a spy-hopping killer whale and a walrus with its head above the water, so that the resulting images resemble a human form.

CONCLUSION

Mazzoldi *et al*. (2019) contended that yesterday's sea monsters are today's megafauna. Anecdotes about sea monsters should therefore be taken seriously as they may contain some of the earliest information about the distribution, size and behaviour of megafauna (Parsons 2004; Paxton *et al*. 2005; Galbreath 2015; France 2024). In some cases, the iconographic record can be even more helpful in depicting antecedent conditions than any number of words. For example, historians of the marine environment have resorted to imaginative past visual depictions as a means by which to detect recent anthropogenic change (Camuffo 2001; McClenachan 2009; Fogliarini *et al.* 2022). Similarly, the present examination joins that of others (Papadopoulos and Ruscillo 2002; Stothers 2004; Guidettia and Micheli 2011; Jaffe 2013; Hendrikx 2018; McCarthy *et al*. 2023) in showing that both ancient and pre-modern images can also be regarded as being early examples of natural history observation.

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NOTE

[1] N. Hoage, 2017. *The significance of sea monsters on sixteenth century maps*. Unpublished MA thesis. Leiden University.

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